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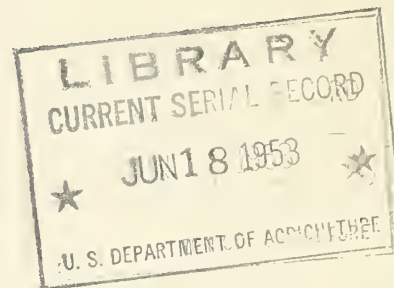
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X PUBLICATIONS AND PATENTS  
OF THE  
EASTERN REGIONAL RESEARCH LABORATORY,  
July - December 1952 X

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This supplement includes an index which covers AIC-180 and Supplements 1 through 6, and AIC-320 and Supplements 1 through 3.

BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY  
AGRICULTURAL RESEARCH ADMINISTRATION  
UNITED STATES DEPARTMENT OF AGRICULTURE



1952

July - December

### Publications

- 665 Badgett, C. O., Eisner, Abner, and Walens, Henry A.  
**DISTRIBUTION OF PYRIDINE ALKALOIDS IN THE SYSTEM BUFFER-t-AMYL ALCOHOL**  
Journal of the American Chemical Society, vol. 74, p. 4096-4098.  
August 20, 1952.  
The partition coefficients of 14 N-heterocyclic compounds related to the tobacco alkaloids were measured in the system t-amyl alcohol-buffer. When possible, the true partition coefficient and hydrolysis constant were calculated. Suitable data are given for control of conditions so that countercurrent distribution can successfully separate these bases in admixture.
- 666 Brice, B. A., Swain, M. L., Herb, S. F., Nichols, P. L., Jr., and Riemenschneider, R. W.  
**STANDARDIZATION OF SPECTROPHOTOMETRIC METHODS FOR DETERMINATION OF POLY-UNSATURATED FATTY ACIDS USING PURE NATURAL ACIDS.** Journal of the American Oil Chemists' Society, vol. 29, p. 279-287, July 1952.  
Spectrophotometric methods of analysis of natural fats and oils were restandardized for several conditions of alkali-isomerization. Purified methyl esters of linoleic, linolenic, and arachidonic acids prepared by physical rather than chemical means were used. Application of the revised methods to a wide selection of oils and fats showed substantially greater accuracy than that obtained by using standards prepared by debromination procedures.
- 667 Calesnick, Eleanor J., and White, Jonathan W., Jr.  
**THERMAL RESISTANCE OF *BACILLUS LARVAE* SPORES IN HONEY.** Journal of Bacteriology, vol. 64, p. 9-15, July 1952.  
Thermal death-time studies were made on spores of *Bacillus larvae* in honey. In dilute honey at a pH of 3.0 over a temperature range of 100 to 140° C., the TDT curve obtained had a "z" value of 30° F. and an F value of 8.6. Exposure of 10<sup>8</sup> spores per milliliter of honey of 55 percent solids at pH 3 to the following conditions reduced the viable spore population to less than 0.1 per milliliter: 160 minutes at 100° C., 41 minutes at 110°, 8.6 minutes at 121°, 1.9 minutes at 132°, and 0.64 minute at 140°. A continuous method based on these data was developed for sterilization of honey with respect to *Bacillus larvae* spores.

- 668 Coleman, Joseph E., Knight, H. B., and Swern, Daniel.  
**REACTIONS OF FATTY MATERIALS WITH OXYGEN. XII. NEW METHOD FOR CONCENTRATING LONG-CHAIN PEROXIDES.** Journal of the American Chemical Society, vol. 74, p. 4886-4889, October 5, 1952.  
By precipitating the nonperoxidic portion of methyl oleate autoxidation mixtures (containing 4-37 percent peroxides) as urea complexes, concentrates containing 70-90 percent peroxides were isolated from the filtrate in 50-95 percent yields. The three isolation techniques developed are applicable on a large laboratory scale, no specialized equipment or chemicals are required, temperatures in the range of room temperature to the boiling point of methanol are employed, and the procedures are readily duplicated. A preliminary study indicated that the new techniques are applicable to the concentration of peroxides from autoxidized methyl elaidate and polyunsaturated acids.
- 669 Dryden, E. C., Willaman, J. J., and Hills, Claude H.  
**SOME FACTORS AFFECTING THE PECTIN GRADE OF APPLE POMACE.** Food Technology, vol. 6, p. 474-478, December 1952.  
Pomace samples were prepared, dried in a laboratory drier under different conditions of temperature and time, and evaluated for pectin grade. In most cases, apples kept in cold storage showed no significant change in grade of pomace during the first 4 to 5 months, when only sound tissue was used. When partly rotted apples were prepared without trimming, however, the grade was markedly lower. Pomace allowed to stand at room temperature for 24 hours or longer before drying showed much deterioration in grade. Pomace dried by various commercial methods was somewhat lower in grade than the same material dried in the laboratory drier.
- 670 Edwards, Paul W., Eskew, Roderick K., Hoersch, A., Jr., Aceto, Nicholas C., and Redfield, C. S.  
**RECOVERY OF TOMATO PROCESSING WASTES.** Food Technology, vol. 6, p. 383-386, October 1952.  
Describes a method based on pilot-plant tests, and gives estimated costs for the recovery of 83 percent of the waste solids that occur in a plant processing tomatoes into juice and juice products.
- 671 Eskew, Roderick K., Redfield, Clifford S., Eisenhardt, Nelson H., Claffey, Joseph B., and Aceto, Nicholas C.  
**HIGH-DENSITY FULL-FLAVOR GRAPE JUICE CONCENTRATE.** AIC-342, September 1952. (Processed.)  
Full-flavor, high-density grape juice concentrate, made by the process here described, offers substantial savings in packaging, storing, and transportation over the 4-fold concentrate now being manufactured. It can be stored at low temperatures for a year without significant deterioration. When diluted with 6 volumes of water, it makes an excellent grape juice. Details and costs of the manufacturing process and the equipment are given.



- 672 Fein, M. L., Harris, E. H., Jr., Dietz, T. J., and Filachione, E. M.  
**LAURATES AND PELARGONATES OF LACTIC ESTERS AS PLASTICIZERS.** India  
Rubber World, vol. 126, p. 783-786, September 1952.  
The pelargonates and laurates of various lactic esters such as alkyl, cycloalkyl, alkoxyalkyl, and tetrahydrofurfuryl lactates were screened as plasticizers for a 95 percent vinyl chloride-5 percent vinyl acetate copolymer. Esterification of butyl lactate with lauric acid was studied, and conditions were determined that produced a mixture of butyl lactate laurate and butyl lactyllactate laurate in high yield. These derivatives do not appear suitable as primary plasticizers, but blends with dioctyl phthalates or tricresyl phosphate appeared to possess desirable plasticizing properties.
- 673 Filachione, E. M., and Costello, E. J.  
**LACTIC ESTERS BY REACTION OF AMMONIUM LACTATE WITH ALCOHOLS.** Industrial and Engineering Chemistry, vol. 44, p. 2189-2191, September 1952.  
This paper describes the preparation of ammonium lactate, and the preparation of lactic esters by the reaction of ammonium lactate with alcohols containing four to eight carbon atoms. The conversion of salt to ester was, in general, in the range of 50 to 75 percent. By recycling the by-products of the reaction, butyl lactate was prepared in an 85 percent over-all yield.
- 674 Herb, S. F., and Riemenschneider, R. W.  
**INFLUENCE OF ALKALI CONCENTRATION AND OTHER FACTORS ON THE CONJUGATION OF NATURAL POLYUNSATURATED ACIDS AS DETERMINED BY ULTRAVIOLET ABSORPTION MEASUREMENTS.** Journal of the American Oil Chemists' Society, vol. 29, p. 456-461, November 1952.  
Optimum conditions for maximum conjugation of methyl arachidonate were determined. These comprise heating the sample in 21 percent KOH glycol for 15 minutes at 180° C. Optimum conditions of isomerization were also used for methyl linoleate, methyl linolenate, methyl eicosapentaenoate, and docosapentaenoate, which were prepared by physical methods. These conditions greatly increased the sensitivity of the spectrophotometric method for all the polyunsaturated acids except linoleic, for which the sensitivity was unchanged.
- 675 Hipp, N. J., Groves, M. L., and McMeekin, T. L.  
**ACID-BASE TITRATION, VISCOSITY AND DENSITY OF  $\alpha$ -,  $\beta$ - AND  $\gamma$ -CASEIN.**  
Journal of the American Chemical Society, vol. 74, p. 4822-4826, October 5, 1952.  
Titration curves, viscosities, and densities of  $\alpha$ -,  $\beta$ - and  $\gamma$ -casein showed that these proteins differ and that the variation in properties is related to their amino acid compositions. The results obtained with preparations of these proteins separated by alcohol or urea were the same as those obtained by the milder procedure of isoelectric precipitation at 2°, indicating that no change in structure was produced by alcohol or urea.

- 676 Hoover, Sam R., Jasewicz, Lenore, and Porges, Nandor.  
**BIOCHEMICAL OXIDATION OF DAIRY WASTES. IV. ENDOGENOUS RESPIRATION AND STABILITY OF AERATED DAIRY WASTE SLUDGE.** Sewage and Industrial Waste, vol. 24, p. 1144-1149, September 1952.  
The rate of endogenous respiration (autodigestion) of the aerobic microflora that oxidizes milk solids is low in comparison with the rate of growth of these organisms. Theoretical and practical applications of these results are discussed.
- 677 Howerton, W. W., and Dietz, T. J. (ERRL), and Snyder, A. D., and Alden, G. E. (Government Laboratories, Rubber Reserve Corporation).  
**PILOT PLANT PRODUCTION OF LACTOPRENE EV.** Rubber Age, vol. 72, pp. 353-362, December 1952.  
Lactoprene EV is an acrylic copolymer made from a monomer charge composed of 95 percent ethyl acrylate and 5 percent chloroethyl vinyl ether. Methods for making it by emulsion polymerization under atmospheric reflux conditions in 10-gallon and 80-gallon pilot plant reactors are described. Two emulsion polymerization formulas are given, one for a low-solids latex and the other for a high-solids stable latex. Formulas for compounding the polymer are also given. Outstanding properties of the polymer are its resistance to dry heat, sunlight, oxygen, ozone and oil; it also has excellent flex life and outgrowth resistance.
- 678 Knight, H. B., Witnauer, Lee P., Coleman, Joseph E., Noble, Wilfred R., Jr., and Swern, Daniel.  
**DISSOCIATION TEMPERATURES OF UREA COMPLEXES OF LONG-CHAIN FATTY ACIDS, ESTERS AND ALCOHOLS. A NEW CHARACTERIZATION TECHNIQUE.** Analytical Chemistry, vol. 24, p. 1331-1334, August 1952.  
Urea complexes were prepared in high yield from 42 long-chain compounds, consisting of fatty acids, methyl and vinyl esters, alcohols, a mono- and diglyceride, and a vinyl ether. These include several cis-trans pairs and some long-chain compounds with oxygen-containing functional groups in the chain. With a few exceptions, the dissociation temperature of each of these complexes was determined. The dissociation temperature, which is the temperature at which opacity first occurs when a transparent crystal of urea complex is slowly heated, is characteristic for each complex and can be readily duplicated ( $\pm 1.5^\circ$ ).
- 679 Krewson, C. F., and Naghski, J.  
**SOME PHYSICAL PROPERTIES OF RUTIN.** Journal of the American Pharmaceutical Association, Scientific Edition, vol. 41, p. 582-587, November 1952.  
The solubility and optical rotation of rutin in various solvents are reported. Solubility curves are given for rutin-water-solvent mixtures at room temperatures and for boiling solutions. By means of solvent complexes, rutin was prepared in highly purified form, free of quercetin and minor flavonoids. Such rutin is suitable for parenteral injection.
- 680 McMeekin, T. L., and Marshall, Kathleen.  
**SPECIFIC VOLUMES OF PROTEINS AND THE RELATIONSHIP TO THEIR AMINO ACID CONTENTS.** Science, vol. 116, p. 142 and 143, August 8, 1952.  
Values for the specific volumes of a number of proteins were calculated from their amino acid compositions reported in recent literature. In most cases, these calculated values are in good agreement with the reported values for specific volumes derived from density measurements.



- 681 Morris, S. G., Gordon, C. F., Brenner, N., Meyers, J. S., Jr., Riemenschneider, R. W., and Ault, W. C.

**FRACTIONATION OF ANIMAL FAT GLYCERIDES BY CRYSTALLIZATION FROM ACETONE. AN IMPROVED LARD OIL.** Journal of the American Oil Chemists' Society, vol. 29, p. 441-443, November 1952.

Various edible and inedible grades of animal fats, such as lard, grease tallow, and selectively hydrogenated lard, grease, and tallow, were separated into "oils" and "stearins" by crystallization from acetone. Lard oils or industrial oils of improved quality were prepared from hydrogenated fats.

- 682 Naghski, J., Brice, B. A., and Krewson, C. F.  
**PRODUCTION OF BUCKWHEAT LEAF MEALS WITH HIGH RUTIN CONTENT.** American Journal of Pharmacy, vol. 124, p. 297-306, September 1952.

Factors that contribute to the production of buckwheat leaf meal with a high rutin content are reviewed. It is suggested that application of these factors, with further studies of growing and harvesting conditions, should permit buckwheat to compete with imported sources of rutin.

- 683 Naghski, J., Mellon, E. F., Korn, A. H., and Ogg, C. L.  
**WATER SORPTION STUDIES ON RUTIN AND THE DETERMINATION OF MOISTURE.** Journal of the American Pharmaceutical Association, Scientific Edition, vol. 41, p. 599-602, November 1952.

Vapor-phase water-sorption studies were made on rutin of pharmaceutical grade and on highly purified rutin. Various procedures for determination of moisture in this highly hygroscopic material were investigated.

- 684 Porges, Nandor, Jasewicz, Lenore, and Hoover, Sam R.  
**MEASUREMENT OF CARBON DIOXIDE EVOLUTION FROM AERATED SLUDGE.** Sewage and Industrial Wastes, vol. 24, p. 1091-1097, September 1952.

The  $\text{CO}_2$  produced by the action of aerated sludge on substrates is a measure of its oxidizing ability. A simple method for determining  $\text{CO}_2$  is described. It is captured in a  $\text{Ba}(\text{OH})_2$  solution, and determined titrimetrically with oxalic acid. Some applications are described.

- 685 Porges, Nandor, Pepinsky, Janet B., Jasewicz, Lenore, and Hoover, Sam R.  
**BIOCHEMICAL OXIDATION OF DAIRY WASTES. III. FAILURE OF SODIUM NITRATE AS A SOURCE OF OXYGEN.** Sewage and Industrial Wastes, vol. 24, p. 874-881, July 1952.

Use of sodium nitrate as a source of oxygen in the disposal of dairy waste was not successful. This salt had only a slight effect on the activity of the sludge waste mixtures. The evolution of  $\text{CO}_2$ , a measure of sludge activity, was determined manometrically and titrimetrically. Sodium nitrate did not prevent offensive odors in the absence of air, and it is not suitable for the oxidation of dairy waste disposal plants.

- 686 Port, William S., Jordan, E. F., Jr., Hansen, John E., and Swern, Daniel.  
**POLYMERIZABLE DERIVATIVES OF LONG-CHAIN FATTY ACIDS. VII. COPOLYMERIZATION OF VINYL ACETATE WITH SOME LONG-CHAIN VINYL ESTERS.** Journal of Polymer Science, vol. 9, p. 493-502, December 1952.  
 A study was made of the copolymerization of vinyl acetate with vinyl palmitate, vinyl stearate, and vinyl oleate, respectively. The first-order transition temperatures and the brittle points of the copolymers were measured. The monomer reactivity ratios for the system vinyl acetate-vinyl palmitate were determined by two methods.
- 687 Porter, W. L., Buch, M. L., and Willits, C. O.  
**MAPLE SIRUP. IV. EFFECT OF HEATING SIRUPS UNDER CONDITIONS OF HIGH TEMPERATURE AND LOW WATER CONTENT. SOME PHYSICAL AND CHEMICAL CHANGES.** Food Research, vol. 17, p. 475-481, November-December 1952.  
 The paper reports quantitative changes that occur when maple sirup of low water content is refluxed at high temperature.
- 688 Rehberg, C. E., Dietz, T. J., Meiss, P. E., and Dixon, Marion B.  
**PLASTICIZERS FROM LACTIC ESTERS AND DIBASIC ACIDS.** Industrial and Engineering Chemistry, vol. 44, p. 2191-2195, September 1952.  
 Describes 43 diesters of lactic acid in which simple lactate esters were esterified with dibasic acids (mostly adipates, phthalates, sebacates, maleates, and succinates), and gives results of preliminary evaluation of these esters as plasticizers for a 95 percent vinyl chloride-5 percent vinyl acetate copolymer and cellulose acetate. Most of the esters were compatible with one or both resins, and many appeared to be more efficient than di-2-ethylhexyl phthalate in plasticizing the vinyl resin.
- 689 Rehberg, C. E., and Siciliano, James.  
**LIQUID POLYMERS OF ACRYLIC ESTERS.** Industrial and Engineering Chemistry, vol. 44, p. 2864-2866, December 1952.  
 Neutral, thermally and chemically stable, liquid polyacrylic esters were prepared by conducting the polymerizations in boiling isopropylbenzenes as solvents. In some cases, more than half the polymer was distillable, and fractional distillation yielded distinct, homogeneous fractions. Molecular weights ranged from a few hundred to several thousand, viscosities from 3 centistokes to infinity, and ASTM viscosity slopes from 0.5 to 0.9. As plasticizers for vinyl chloride resin, most of the esters were compatible but produced hard boardlike plastics.
- 690 Ricciuti, Constantine, Willits, C. O., Wall, M. E., and Krider, M. M.  
**POLAROGRAPHIC BEHAVIOR OF 12-KETO SAPOGENINS.** Journal of the American Chemical Society, vol. 74, p. 4461-4462, September 5, 1952.  
 A polarographic study was made of five 12-keto sapogenins. Tigogenin, hecogenin, manogenin and kammogenin, which do not have an  $\alpha$ ,  $\beta$  unsaturated carbonyl group, do not reduce polarographically. However, 9,11-dehydromanogenin, which has an  $\alpha$ ,  $\beta$  unsaturated 12-keto group, reduces polarographically and can be estimated quantitatively in the range of 20-100 mg. per 40 ml. of the nonaqueous lithium chloride electrolyte.

- 691 Roe, Edward T., Miles, Thomas D., and Swern, Daniel.  
**FATTY ACID AMIDES. V. PREPARATION OF N-(2-ACETOXYETHYL)-AMIDES OF ALIPHATIC ACIDS.** Journal of the American Chemical Society, vol. 74, p. 3442-3443, July 5, 1952.  
Palmitamide and caproamide were obtained in 36 to 55 percent yields by heating the corresponding acids with acetamide or formamide at 230°. Oleamide was obtained in 50 percent yield when oleic acid was heated with formamide.
- 692 Rogers, Jerome S.  
**POTENTIAL TANNIN SUPPLIES FROM DOMESTIC BARKS.** Northeastern Wood Utilization Council Bulletin No. 39, "Tannin from Waste Bark," September 1952.  
A discussion of available but unused domestic barks that are potential sources of tannin, and an estimate of the total tannin that they represent.
- 693 Rogers, J. S. (ERRL), and Pultz, L. M. (BPISAE).  
**CANAIGRE - A POSSIBLE DOMESTIC SOURCE OF VEGETABLE TANNIN.** Shoe and Leather Reporter, vol. 268, no. 13, p. 20-21, 24-27, December 27, 1952.  
This paper reviews the history of canaigre and briefly describes agronomic field studies. It discusses laboratory development and processing investigations for the production of canaigre tanning extract and its application in tanning leather.
- 694 Rothman, Edward S., Wall, Monroe E., and Eddy, C. Roland.  
**STEROIDAL SAPOGENINS. III. STRUCTURE OF STEROIDAL SAPONINS.** Journal of the American Chemical Society, vol. 74, p. 4013-4016, August 20, 1952.  
Infrared absorption data showed that steroidal glycosides or glycoside acetates have the same spiroketal side chain and C-12 carbonyl functions as do the sapogenins derived from the parent glycosides by hydrolytic cleavage.
- 695 Rothman, Edward S., Wall, Monroe E., and Walens, Henry A.  
**STEROIDAL SAPOGENINS. IV. HYDROLYSIS OF STEROIDAL SAPONINS.** Journal of the American Chemical Society, vol. 74, p. 5791-5792, November 20, 1952.  
A study of hydrolysis of steroidal saponins indicated that much more vigorous conditions for hydrolysis are necessary for cleavage than are required for cardiac glycosides containing a 2-desoxy sugar-steroid linkage. Suitable hydrolysis conditions are indicated.
- 696 Schweigert, B. S., Siedler, A. J., Dugan, L. R., Jr., and Neumer, J. F. (American Meat Institute Foundation; work done under Research and Marketing Act Contract).  
**USE OF INEDIBLE FATS IN DRY DOG FOODS AND POULTRY RATIONS.** American Meat Institute Foundation Bulletin No. 15, October 1952.  
Nutritional investigations showed that rate of growth and utilization of food of dogs and broilers fed typical commercial rations to which choice white grease was added at different levels up to 8 percent were equal, or slightly superior, to those observed when the control basal ration was fed. Antioxidants incorporated in the fats added to the rations were of value in retarding the loss of vitamin A in the feeds during storage.



697 Senti, Frederic R., and Witnauer, Lee P.

**X-RAY DIFFRACTION STUDIES OF ADDITION COMPOUNDS OF AMYLOSE WITH IN-ORGANIC SALTS.** Journal of Polymer Science, vol. 9, p. 115-132, August 1952.

Addition compounds of amylose with potassium bromide, iodide, bicarbonate, formate, acetate, and propionate and with sodium bromide and ammonium fluoride were prepared. From X-ray diffraction fiber patterns of these compounds unit cell dimensions were determined, and a partial analysis was made of the structure of potassium bromide amylose.

698 Smith, Loren B., and Johnson, John

(Kansas State College; work done under Research and Marketing Act Contract).

**THE USE OF HONEY IN CAKE AND SWEET DOUGHS.** Bakers Digest, vol. 26, p. 113-118, December 1952.

The role of honey in production of commercial cakes and yeast-raised sweet goods was studied on a pilot-plant scale. In cakes, honey gave improved moisture retention and shelf life, together with improved eating quality and richer flavor. Previous experience that one-third replacement of sugar by honey is the maximum was confirmed. Use of honey in basic sweet doughs produced improved eating quality, flavor, and color. It was found that color and flavor are the only variables of honey that must be considered in specifying honey for baking. Proposed specifications for honey intended for baking are presented.

699 Stirton, A. J.

**RAW MATERIALS FOR SOAP. SATURATED AND UNSATURATED FATS.** Journal of the American Oil Chemists' Society, vol. 29, p. 482-485, November 1952. A review of the composition of the animal fats, lauric acid oils, vegetable oil foots, and hydrogenated marine oils used in soapmaking.

700 Swern, Daniel, and Findley, Thomas W.

**CHEMISTRY OF EPOXY COMPOUNDS. XIV. REACTION OF CIS-9,10-EPOXYSTEARIC ACID WITH AMMONIA AND AMINES.** Journal of the American Chemical Society, vol. 74, p. 6129-6141, December 5, 1952.

The reaction of cis-9,10-epoxystearic acid, m.p. 59.5°, with ammonia, methylamine, ethylamine, dimethylamine, diethylamine, and aniline was studied. The oxirane ring was readily opened, and unsubstituted or substituted aminohydroxystearic acids were obtained. Some of the substituted products showed surface activity.

701 Swern, Daniel, and Parker, Winfred E.

**APPLICATION OF UREA COMPLEXES IN THE PURIFICATION OF FATTY ACIDS, ESTERS, AND ALCOHOLS. I. OLEIC ACID FROM INEDIBLE ANIMAL FATS.** Journal of the American Oil Chemists' Society, vol. 29, p. 431-434, October 1952.

Urea complex formation was employed in the preparation of purified oleic acid (oleic acid content, 80-95 percent) from various grades of inedible animal fats and red oils. Since the urea complex of oleic acid forms in good yield at room temperature, low temperatures were not required in the isolation procedure.

- 702 Swern, Daniel, and Parker, Winfred E.  
**APPLICATION OF UREA COMPLEXES IN THE PURIFICATION OF FATTY ACIDS, ESTERS, AND ALCOHOLS. II. OLEIC ACID AND METHYL OLEATE FROM OLIVE OIL.** Journal of the American Oil Chemists' Society, vol. 29, p. 614-615, December 1952.  
Oleic acid and methyl oleate of high purity (97-99 percent) and substantially free (0.2 percent or less) of polyunsaturated contaminants were isolated in 60-70 percent yields from the fatty acids or methyl esters of olive oil by procedures that required only one precipitation of urea complexes (single dose of urea technique), one low-temperature crystallization, and one fractional distillation. The urea complex separation technique can be applied directly to olive oil methanolysis reaction mixtures without prior isolation of the mixed methyl esters.
- 703 Turner, Arthur, Jr.  
**REPORT ON RUTIN IN TABLETS.** Journal of the Association of Official Agricultural Chemists, vol. 35, p. 566-568, August 1952.  
Report to the A. O. A. C. by the Associate Referee on Rutin in Tablets. The report concerns a spectrophotometric method that is being considered for collaborative study.
- 704 Turner, Arthur, Jr.  
**DETERMINATION OF RUTIN IN BUCKWHEAT LEAF MEAL AND OTHER PLANT MATERIALS. ABSORPTIOMETRIC METHOD.** Analytical Chemistry, vol. 24, p. 1444-1445, September 1952.  
An absorptiometric method was developed for determination of rutin in plant materials. This method greatly reduces the time required for analysis and is more precise than the gravimetric method now in use. These features suggest the use of the method as a control procedure during the manufacturing process.
- 705 Veitch, F. P., Frey, R. W., and Holman, H. P.  
(Leather and Tanning Investigations, Bureau of Chemistry). Revised by Rogers, J. S., and Clarke, I. D. (ERRL)  
**LEATHER SHOES - SELECTION AND CARE.** United States Department of Agriculture Farmers' Bulletin No. 1523, 16 pages. Issued April 1927; revised August 1952 Gives information on shoe leathers and the construction, selection, and care of shoes.
- 706 Wall, Monroe E., Eddy, C. Roland, McClennan, Marian L., and Klumpp, Mary E.  
**DETECTION AND ESTIMATION OF STEROIDAL SAPOGENINS IN PLANT TISSUE.** Analytical Chemistry, vol. 24, p. 1337-1341, August 1952.  
Extracts of plant tissue were screened by hemolysis for the presence of saponins. Those that hemolyzed were hydrolyzed, and steroidal sapogenins in the resulting product were estimated by infrared absorption.
- 707 Wall, Monroe E., Krider, Merle M., Rothman, Edward S., and Eddy, C. Roland.  
**STEROIDAL SAPOGENINS I. EXTRACTION, ISOLATION, AND IDENTIFICATION.** Journal of Biological Chemistry, vol. 198, p. 533-543, October 1952.  
Methods for the extraction, isolation, and identification of steroidal sapogenins were developed. Saponins are extracted from plant tissue with alcohol, purified by transfer to butanol, and then acid-hydrolyzed to yield sapogenins.



- 708 Weil, Leopold, Buchert, A. R., and Maher, J.  
**PHOTOOXIDATION OF CRYSTALLINE LYSOZYME IN THE PRESENCE OF METHYLENE BLUE AND ITS RELATION TO ENZYMATIC ACTIVITY.** Archives of Biochemistry and Biophysics, vol. 40, p. 245-252, October 1952.  
Chemical and physical changes produced in the lysozyme molecule by visible light in the presence of methylene blue were correlated with the enzymatic activity. The possible role of certain amino acids in the enzymatic activity is discussed.
- 709 White, Jonathan W., Jr.  
**THE ACTION OF INVERTASE PREPARATIONS.** Archives of Biochemistry and Biophysics, vol. 39, p. 238-240, July 1952.  
A reported failure to demonstrate oligosaccharide synthesis during yeast invertase action on sucrose was shown to be due to the methods used. Results of other workers in the field are thus confirmed.
- 710 White, Jonathan W., Jr., Ricciuti, C., and Maher, Jeanne.  
**DETERMINATION OF DEXTROSE AND LEVULOSE IN HONEY.** Journal of the Association of Official Agricultural Chemists, vol. 35, p. 859-872, November 1952.  
In a comparative study of methods for determination of sugars in honey, 15 honey samples were analyzed for dextrose and levulose by 5 methods. Statistical study of the results ranked the methods as follows in order of decreasing precision. For dextrose: Lothrop-Holmes, AOAC, Marshall-Norman, Jackson-Mathews (polarimetric) and Jackson-Mathews (oxidation); for levulose: Lothrop-Holmes, AOAC, Jackson-Mathews (oxidation), Marshall-Norman, Jackson-Mathews (polarimetric).  
  
Analysis of variance showed that variance due to methods was as great as variance due to differences in dextrose and levulose contents of the samples from 14 different floral sources.
- 711 White, Jonathan W., Jr.  
**NEW FOOD PRODUCTS FROM HONEY.** American Bee Journal, vol. 92, p. 504-506, December 1952.  
A nontechnical summary of the Laboratory research program on honey utilization. Describes honey-fruit spreads, dry honey-skim milk, and the role of honey in commercial baking.
- 712 Willits, C. O., and Connelly, J. A.  
**ATOMIZER FOR FLAME SPECTROPHOTOMETRY.** Analytical Chemistry, vol. 24, p. 1525-1526, September 1952.  
An all-glass reflux-type atomizer for flame spectrophotometry is described. It produces a uniform aerosol and steady radiation, uses a minimum of sample, and is readily cleaned while in operating position.
- 713 Willits, C. O., Porter, W. L., and Buch, M. L.  
**MAPLE SIRUP. V. FORMATION OF COLOR DURING EVAPORATION OF MAPLE SAP TO SIRUP.** Food Research, vol. 17, p. 482-486, November-December 1952.  
The relation of sugar concentration and of time of heating to formation of color during evaporation of maple sap to sirup was determined. Diluted colorless and flavorless maple sirup was used in the study.

714 Witnauer, L. P., Senti, F. R. (ERRL), and Stern, M. D. (Temple University).

**MOLECULAR WEIGHT OF POTATO AMYLOPECTIN AS DETERMINED BY LIGHT SCATTERING.**

Journal of Chemical Physics, vol. 20, p. 1978-1979, December 1952.

Light-scattering observations on potato amylopectin in water solutions and on acetylated amylopectin in several organic solvents are reported. It is concluded that the "native" molecular weight of potato amylopectin is 10 million or more.

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Patents

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Fisher, Charles H., and Fein, Martin L.

**ESTERS OF ACYLATED HYDROXYCARBOXYLIC ACIDS.** U. S. Patent No. 2,610,196,  
issued September 9, 1952.

Knight, Hogan B.

**POLYMERIC PLASTICIZERS.** U. S. Patent No. 2,613,157, issued October 7, 1952.

Rehberg, Chessie E.

**ALKYL CARBONATES OF LACTATES.** U. S. Patent No. 2,615,914, issued October  
28, 1952.

Roe, Edward T., and Swern, Daniel.

**METHOD OF PRODUCING AMIDES.** U. S. Patent No. 2,608,562, issued August 26,  
1952.

Schwartz, Joseph H., Talley, Eugene A., Zief, Morris, and Fisher, Charles H.

**ETHER-ESTERS OF POLYHYDROXY COMPOUNDS.** U. S. Patent No. 2,602,789, issued  
July 8, 1952.

Swern, Daniel, Roe, Edward T., and Scanlan, John T.

**AMIDES OF 9,10-DIHYDROXYSTEARIC ACID.** U. S. Patent No. 2,605,270, issued  
July 29, 1952.

Webb, Byron H., and Walton, George P.

**DRIED HONEY-MILK PRODUCT.** U. S. Patent No. 2,621,128, issued December 9,  
1952.

Wrigley, Arthur N., Yanovsky, Elias, and Nichols, Peter L., Jr.

**POLYMERIZATION OF ALLYLIC ETHERS.** U. S. Patent No. 2,623,864, issued  
December 30, 1952.

Zief, Morris, and Yanovsky, Elias.

**POLYMERIZATION OF POLYALLYL AND POLYMETHALLYL ETHERS OF POLYHYDROXY COMPOUNDS.**  
U. S. Patent No. 2,606,881, issued August 12, 1952.

Index to publications listed in AIC-180 and Supplements 1 through 6, and AIC-320 and Supplements 1 to 3 (1939 through December 1952). The numbers refer to the numbers of the publications in the lists; for those with an asterisk, reprints were not available at the time the index was prepared.

## I. FRUITS AND VEGETABLES

### A. Apples and other eastern fruits

1. Apple essence  
78\*, 201, 250, 295, 322, 379\*, 404\*, 442, 478, 587
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3. Apple sirup; apple butter; apple pomace  
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6. Pectin and derivatives; pectases  
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7. Miscellaneous and general; research program  
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### B. Potatoes

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4. Rutin analysis
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  - 16\*, 464, 623
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